DOCUMENT RESUME

ED 299 236 SP 030 607

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TITLE Instructional Objectives. Occasional Monograph.
INSTITUTION Ottawa Univ. (Ontario).
PUB DATE 87
NOTE 18p.; A publication of the Teaching Resources Service.
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Affective Objectives; *Cognitive Objectives; *Course Objectives; Elementary Secondary Education; Foreign Countries; Higher Education; *Instructional Improvement; *Psychomotor Objectives

ABSTRACT

This monograph offers concise suggestions for drawing up instructional objectives. The essential elements of a well written instructional objective are outlined and a discussion is presented on writing instructional objectives in three major domains of learning: cognitive, affective, and psychomotor. It is emphasized that an instructional objective states what the learner will know or be able to do upon completing a particular unit. Brief exercises for the reader help to clarify how instructional objectives fit into course design and how they can be employed most effectively. References are included. (JD)

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INSTRUCTIONAL OBJECTIVES

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Special thanks to
John S. Batts
and
Ruth Y. Whitehead
for their invaluable feedback.

Service de ressources de l'enseignement
Teaching Resources Service

UNIVERSITÉ D'OTTAWA UNIVERSITY OF OTTAWA

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1986-1987

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Introduction

This monograph focuses on objectives and the roles they may play in both teaching and learning.

It is not a question of whether or not to have objectives. All instructors have objectives, even though they may not be verbalized or written. The real issue is twofold: how instructional objectives fit into course design and how they can be employed most effectively.

Instructional objectives—and not program goals—will be discussed. The author will assume that Faculties, Schools, and/or Departments (in Universities and Colleges) have taken the time to translate their mission statements into realistic and meaningful program goals. The latter, where evident, help to provide cohesiveness and credibility to the academic units concerned.

Assuming instructional objectives are not only important but also necessary introduces many corollary questions; consider these. Are there particular ways of writing them? Where should they appear? With whom will they be shared? How precise should these objectives be? What should the relationship be between course objectives and course evaluation? Why write objectives when you can easily follow the table of contents of the assigned text(s)? How may one ascertain that the specified objectives reflect varying levels of complexity? Should objectives reflect minimal standards of achievement for the entire class? How may the professor, once objectives have been delineated, recognize the sizable individual differences among the students? "When planning a course, I make a list of topics; why should I waste my time translating these into objectives?" Once objectives are stated, how long do they remain *sacred*? How often should objectives be reviewed, updated, modified? Once stated and shared with students, are objectives ever changed during a course? Why not devote class time at the beginning of each course to the delineation of objectives—on the basis of student needs and interests? Do you need objectives if you teach a small class?

The aforementioned questions will be answered in this publication. You will also be provided with opportunities to interact with the content.

It is anticipated that by the time you have studied this monograph you will be able to:

1. Identify the essential elements of a well written instructional objective.
2. Write instructional objectives in three major categories of learning.
3. Identify, from a list of objectives, those written at each level of Bloom's hierarchy of cognition.
4. Extol the advantages and disadvantages of instructional objectives.

Background

Perhaps the individual who influenced the educational community most profoundly vis-a-vis objectives was Robert Mager who first wrote about them in 1962. Not that objectives were not in evidence prior to Robert Mager; Ralph Tyler had certainly highlighted their importance in his landmark course syllabus published in 1949. Another curricularist, Franklin Bobbitt, advocated writing objectives in his 1918 publication, *The Curriculum*.

Throughout the late 1960's and early 1970's, the "objectives movement" grew, particularly in elementary and secondary education. A continuum evolved which reflected extremely precise behavioral (*student* behavior) objectives at one end and open-ended objectives (or their absence thereof) at the other. For a while, legislators (in the United States) were requiring public school teachers to write behavioral objectives. There were imitators in Canada. These extremes led Arthur Combs (1972) to call for a moratorium re: objectives until educators came back to their senses. The movement was also accompanied by a plethora of books advocating the use of objectives. Along with these publications came a highly specialized (sometimes contradictory) lexicon. Next, the writing of objectives became a highly specialized technology. Fortunately educators became more moderate following these excesses.

Objectives are important, but emphasis must also be placed on the selection of content and the organization of learning activities for the students. Once the course objectives are in hand, curriculum development must address issues of teaching materials, lesson plans, and evaluation.

Too often in the past objectives were prepared and then the process broke down. Instructors had long lists of objectives but few ideas on how they could help their students achieve them. Objectives became the primary focus.

What is an instructional objective?*

After reading an indeterminate number of definitions, it was felt that Bruce Squire's interpretation would serve well; namely,

"An [instructional] objective is an *intent* communicated by a statement describing a proposed change in the learner—a statement of what the learner is to be like when s/he has successfully completed a learning activity." (1974)

What elements or key words should make up an instructional objective?

Jerrold Kemp (1985) suggests that educators consider *essential* and *optional* elements; i.e.,

Essential:

1. An *action verb* that describes what the learner is expected to do.
2. The *content* being treated.

Optional:

(relate more to competency-based courses)

3. *Performance level*—also referred to as level of achievement. This component indicates the minimum acceptable accomplishment (usually) in measurable terms.**

* Also referred to as course objectives.

** The assumption is that only a 100% achievement level is acceptable if the performance level is not specified.

4. Qualifying *conditions* or *restrictions* under which the learner will perform.

Examples:

Essential:

1. Action verb:
   to *formulate*
   to *compare*
   to *contrast*
2. Content:
   to interpret *the significant development taking place in Haiti*.
   to operate *a portopak video camera*.

Optional:

3. Performance level:
   to list *at least twenty synonyms* for the word, marginal.
4. Conditions or restrictions:
   to compare and contrast two major Canadian political parties *on the basis of two assigned journal articles*.

Cautionary note: An instructional objective does not specify what the professor is to do; on the contrary, it should state what the *learner* will know or be able to do upon completing a particular unit. The objective should not be a *description* of what is to occur in the classroom. For example, "to read Chapter 4 in the assigned text" or "to read the two articles on reserve in the library" are not objectives.

Exercise I

1. Select a topic from one of the courses that you teach.
   a. Write an objective related to the topic in which you specify both an action verb (what the learner is to know or do) and the content.

b. Write another objective (based on content derived from your discipline) which reflects the *four* components introduced in this publication. Identify each.

_____

_____

_____

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_____

Action words

Because certain verbs are open to many interpretations and may invalidate the educational value of your objectives, let us take a closer look at the *action* component.

Exactly what do you want the learner to know? to do? to achieve? to accomplish? What is your *intended* outcome? Once stated, ask someone to react to it. Is it clear to your spouse? a peer? your son or daughter? If your choice of action word is vague or open to a number of interpretations, you may want to become more discriminating.

Verbs that are general and possibly not conducive to measurability:

to improve	to grasp the significance
to really understand	to comprehend
to fully appreciate	to learn
to understand	to think
to enjoy	to expand their horizons
to know	to use

How would you go about evaluating "an appreciation of" or "an understanding" or "grasping the significance"?

How can you overcome the potential pitfall of vagueness in your choice of action words? Simply by becoming more precise and selective with your verbs. Shy away from verbs that are observable and/or measurable.

Examples of such verbs are;

to define	to categorize
to name	to contrast
to classify	to design
to translate	to synthesize
to demonstrate	to predict
to interpret	to appraise

Domains of learning

Cognition

By far the most common type of instructional objective in post-secondary education is the one which focuses on recall of information and other intellectual activities such as interpretation and application. Benjamin Bloom refers to this genre as belonging to the cognitive domain defined as that which "...includes those objectives which deal with the recall or recognition of knowledge and the development of intellectual abilities and skills". (1956, p. 7)

Unfortunately, educators have a tendency to write objectives and concomitant tests at the lower cognitive levels such as memory, understanding, and interpretation. No one knows why this is done. Perhaps because it is easier to write objectives at the lower axis of the hierarchy. Or perhaps it is a replication of the type of objective encountered in ones past? Or is it that knowledge-type test items are easier to correct?

The six basic categories of thinking identified by Bloom *et al.* are:

1. ***Knowledge***—Knowledge involves the following types of behaviors: the recall of specifics and universals, the recall of methods and processes, or the recall of a pattern, structure, or setting.
   Such recall involves little more than bringing to mind the appropriate material.
2. ***Comprehension***—The lowest level of understanding, comprehension, refers to a type of understanding or apprehension such that the individual knows what is being communicated and can make use of the material or idea being communicated without necessarily relating it to other material or seeing its fullest implications.
   This is perhaps the largest general class of intellectual abilities and skills emphasized in schools. When students are confronted with a communication, they are expected to know what is being communicated and to be able to make some use of the material or ideas contained in it.
3. ***Application***—This third category of the cognitive domain can easily be mistaken for comprehension. How often do we hear, "If he comprehends it, he can apply it." Application, however, goes a step beyond comprehension.
   A problem in the comprehension category requires the student to know an abstraction well enough that s/he can correctly demonstrate its use when specifically asked to do so. The student *can* use the abstraction *when* its use is specified.
   Given a new problem, the student will apply the appropriate abstraction without having to be told which abstraction is correct, or without having to be shown how to use it = APPLICATION. The student *will* use the abstraction correctly given an appropriate situation in which no mode of solution is specified.
4. ***Analysis***. Here we have the breakdown of a communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear and/or the relations between the ideas expressed are made explicit. This is a somewhat more advanced level than the skills of comprehension and application; it deals with the both *content* and *form*.
   Analysis has been divided by Bloom into three levels:
   a. Classification of elements.
   b. Identification of relationships among the elements.
   c. Recognition of the organizational principles.

5. ***In Synthesis***, we encounter a process of working with elements, parts, etc., and combining them in such a way as to constitute a structure or pattern not clearly there before. This category, more than any other in the cognitive domain, provides for creative behavior on the part of the learner (even though the student is expected to work within the limits set by particular problems, materials, or some theoretical and methodological framework).

   The learner must draw upon elements from many sources and put these together into a structure or pattern not clearly there before. Different kinds of synthesis are determined on the basis of the product. They are:

   a. *Production of a unique communication*. The learner develops a communication in which s/he attempts to convey ideas, feelings, and/or experiences to others. Her/his purposes may be to inform, to describe, to persuade, to impress, or to entertain.
   b. *Production of a plan, or proposed set of operations*. Example:

Proposed set of operations	Process--carrying out set of operations	Expected outcome
Specifications for a new house	Building the house	The house

   c. *Derivation of a set of abstract relations*. The distinguishing feature here is the attempt to derive abstract relations from a detailed analysis. The relations themselves are not explicit from the start; they must be discovered or deduced.

6. ***Evaluation***—When judgments are made about the value of materials and methods for given purposes, we have *evaluation*. It involves the use of criteria as well as standards for appraising the extent to which materials are effective, accurate, economical, or satisfying. Judgments may be either quantititative or qualitative; criteria may be those determined by the students or those which are given to them.

   Although last on the list, *evaluation* is not necessarily the last step in thinking or problem solving. Quite possibly, the evaluative process may be the prelude to acquisition of new knowledge, new attempts at comprehension or application, or a new analysis and synthesis.

   Two types of evaluations are cited:

   a. *Judgments in terms of internal evidence*. Concerned with tests of the accuracy of the work as judged by consistency, logical accuracy, and the absence of internal flaws.
   b. *Judgments in terms of external criteria*. Concerned with consideration of efficiency, economy, or utility of specific *means* for particular *ends*.

Affect, Psychomotor

Two other domains were mentioned in Bloom's 1956 publication; namely, the *affective* and the *psychomotor*.

The affective part of the taxonomy, developed in depth by David Krathwohl *et al*. (1964), includes objectives which describe changes in attitudes, feelings, interest, sensitivities, values, and the development of appreciations. (Appendix A)

The psychomotor domain is the manipulative or motor-skill area. Anita Harrow (1972) and Elizabeth Simpson (1966-67) have produced taxonomies which provide educators with a method for selecting and organizing movement activities. (Appendix B)

Levels of complexity in intellectual skills

The aforementioned are not the only classifications found in the literature. Robert Gagné, in 1979, described another method of organizing objectives and/or content. His levels, categorized by complexity vis-a-vis mental process(es), are:

PROBLEM SOLVING
(HIGHER-ORDER RULES)

requires as prerequisites

RULES

(including DEFINED CONCEPTS)

which require as prerequisites

CONCRETE CONCEPTS

which require as prerequisites

DISCRIMINATIONS

In solving problems for which instruction has prepared them, learners are acquiring some *higher-order rules* (that is, *complex rules*). Problem solving requires that they recall some simpler, previously learned *rules*. In order to acquire these rules, learners must have acquired some *concrete concepts*; and in order to learn these concepts, they must have learned some *discriminations*. (Gagné, 1979, p. 61-62).

Which domain has priority?

Many university professors would argue that there is only room for knowledge or cognitive objectives in postsecondary education. A minority would say that no objective is entirely devoid of some aspect of the other domains; namely, the affective and the psychomotor. Their contention is that emotions are involved in all aspects of intellectual activity. Facts and feelings, as underscored by Louis Rubin (1973), are an integral part of learning; you cannot separate them.

> ...feelings can *aid* or *hinder* the cognitive process. Properly taken into account, they can make a subject more interesting, learning more easy (sic), motivation more personalized, and behavior more productive. It is imperative that thought (cognition) and emotion (affect) be integrated so that one informs the other.
>
> (Rubin, 1973, p. 15)

Exercise II

1. Write two cognitive objectives based on the Bloom taxonomy. Please identify the level on the hierarchy.

   a. _____

   _____

   _____

   _____

   b. _____

   _____

   _____

   _____

2. Write two affective objectives based on Krathwohl's classification. Please identify the level of affect.

   c. _____

   _____

   _____

   _____

   d. _____

   _____

   _____

   _____

3. Write a psychomotor objective.

   e. _____

   _____

   _____

   _____

   Is your discipline conducive to learnings in the psychomotor domain?

4. Review the five objectives which you have just written. Are the essential elements (action verb and content) evident? Do they reflect any of the optional components (performance level, qualifying conditions or restrictions)?

a. _____

_____

b. _____

_____

c. _____

_____

d. _____

_____

e. _____

_____

Specificity

We must be careful when writing objectives not to get bogged down with specificity. How many instructional objectives should be developed for each course? How will you know when your list is "complete"? Do the objectives adequately reflect the content? Which objectives take priority?

Most advocates of objectives would agree that the instructor should have *at least* one instructional objective for each class encounter. If one or two do not appear adequate, then perhaps a few more should be added. The issue is not frequency but quality of learning and quality of objectives. *What do you want your students to know or to be able to do by the end of your two-hour class?* Choice of objectives and their quantity are personal—totally dependent on the instructor and her/his particular approach to teaching-learning. There should be enough objectives to ascertain clear expectations on the part of students. More important, the delineated objectives should become the referent—the data bank—for the tests and exams which follow. A good rule to follow is "If it has not been stated as an objective, it will not be on the exam". At the same time we should be wary of Stanford Ericksen's admonition that "A good course contains more than can be sampled by a machine-scorable examination." (1984, p. 15)

Jerrold Kemp (1985) suggests that the instructor remain flexible when writing objectives which he sees as "a developmental activity that requires changes, refinements, and additions..." (p. 78) He further states that the original objectives for a particular course should be loosely-worded as a preliminary to choosing learning activities. Once the latter has been accomplished, the instructor can go back to the tentative objectives and finalize them.

Before repeating or reteaching a course the instructional objectives should be scrutinized. Are deletions, omissions, or changes noted?

A professor has to weigh the objectives to determine whether they are too vague (at one extreme) or too precise (at the other).

> Preparing a clear statement of course objectives is a demanding task requiring the best talent, if not the prophetic power, of a teacher. Two questions are ever present: (1) At what time in the future will the significance of a given segment of knowledge pass its inflection point and start downhill toward obsolescence? (2) Is it stepping-stone information or something to be learned for its own long-term value?
>
> (Ericksen, 1984, p. 15)

Cautionary note: The disciplines themselves may impose constraints upon the writing of objectives. Certain learnings are more elusive and/or divergent than others. Subject matter in mathematics, languages, and the sciences is easier to operationalize into meaningful objectives. In these subjects, uniform responses may be the ultimate goal or perhaps the teacher is interested in obtaining evidence that the learner is able to accomplish or perform a particular operation.

In the arts and humanities, where creative and novel responses are sought, it may be much more difficult to identify and specify clear and meaningful objectives. Intentionally, objectives may be defined that are somewhat general and open-ended—provided this is taken into account when students are evaluated.

Incidental learning

There are always topics or actions on the instructional periphery—not included in your instructional objectives—which will materialize while you are teaching. Some of this incidental information advanced by students can provide enrichment and motivation; it can also be intentionally digressive and indicative of wandering minds. With objectives as a skeletal framework for each lesson, however, the instructor has a means of directing the side trackers back on course. Even more effective is the ability of the professor to keep the students motivated through well-prepared lessons. It is your responsibility to command their attention.

Student involvement

Because students do not know the content as well as the instructor does, they should seldom be involved in the definition of instructional objectives. Asking students to tell you want they want to learn is an invitation to disaster and is bound to backfire during the course. The delineation of objectives comes under the aegis of *course preparation*, a responsibility assigned to professors. The students look forward to receiving a course outline or syllabus at the beginning of the term; one of the key components of that course outline is a list of instructional objectives. The latter commit the teacher to certain obligations and vice versa. More important, the objectives—if an integral part of teaching—will provide students with the best possible incentive to achieve.

Recapitulation

Clearly delineated instructional objectives serve several useful purposes; namely,

a. defining the directions in which it is desirable for growth to take place. (This will include cognitive, affective, and psychomotor growth.)
b. providing a basis for meaningful learning activities.
c. delineating (as exemplified by varying degrees of specificity) what the student is to study and what activities s/he is to perform.
d. promoting self-confidence in students through improved communications vis-a-vis content and examinations.
e. providing a framework for devising ways of evaluating student *learning*.

Appendix A

Affective Domain

Taxonomy Classification		KEY WORDS Examples of Infinitives	Examples of Direct Objects
1.0	Receiving		
1.1	Awareness	to differentiate, to separate, to set apart, to share	
1.2	Willingness to	to accumulate, to select, to combine, to accept	models, examples, shapes, sizes, meters, cadences
1.3	Controlled or Selected Attention	to select, to posturally respond to, to listen (for), to control	alternatives, answers, ryhthms, nuances
2.0	Responding		
2.1	Acquiescene in Responding	to comply (with), to follow, to commend, to approve	directions, instructions, laws, policies, demonstrations
2.2	Willingness to Respond	to volunteer, to discuss, to practice, to play	instruments, games, dramatic works, charades, burlesques
2.3	Satisfaction in Response	to applaud, to acclaim, to spend leisure time, to augment	speeches, plays, presentations, writings
3.0	Valuing		
3.1	Acceptance of a Value	to increase measured proficiency in, to increase numbers of, to relinquish, to specify	group membership(s), artistic production(s), musical productions, personal friendships
3.2	Preference for a Value	to assist, to subsidize, to help, to support	artists, projects, viewpoints, arguments
3.3	Commitment	to deny, to protest, to debate, to argue	deceptions, irrelevancies, abdications, irrationalities
4.0	Organization		
4.1	Conceptualization of a Value	to discuss, to theorize (on), to abstract, to compare	parameters, codes, standards, goals
4.2	Organization of a Value System	to balance, to organize, to define, to formulate	systems approaches, criteria, limits

5.0	Characterization by Value of Value Complex		
5.1	Generalized Set	to revise, to change, to complete, to require	plans, behavior, methods, effort(s)
5.2	Characterization	to be rated high by peers in, to be rates high by superiors in, to be rated high by subordinates in and	humanitarianism, ethics, integrity, maturity
		to avoid, to manage, to resolve, to resist	extravagance(s), excesses, conflicts, exorbitancy/ exorbitancies

From Newton S. Metfessel, William B., Michael, & Donald A. Kirsner, "Instrumentation of Bloom's and Krathwohl's Taxonomies for the Writing of Educational Objectives," *Psychology in the Schools*, 6 (July 1969): 227-31.

Appendix B

Psychomotor Domain	
Taxonomy Classification	
1.0	Reflex movements
2.0	Basic fundamental movements
2.1	Locomotor movements
2.2	Nonlocomotor movements
2.3	Manipulative movements
3.0	Perceptual abilities
3.1	Kinesthetic discrimination
3.2	Visual discrimination
3.3	Auditory discrimination
3.4	Tactile discrimination
3.5	Coordinated perceptual abilities
4.0	Physical abilities
4.1	Endurance
4.2	Strength
4.3	Flexibility
4.4	Agility
5.0	Skilled movements
5.1	Simple adaptive skill
5.2	Compound adaptive skill
5.3	Complex adaptive skill
6.0	Nondiscursive communication
6.1	Expressive movement
6.2	Interpretive movement

From Anita Harrow, *A Taxonomy of the Psychomotor Domain* (New York: David McKay, 1972)

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